

## Computed Tomography

Computed tomography is a diagnostic procedure in which cross-sectional pictures or “tomographic slices” of the body are made by x-ray. This technique may also be called a CT scan or CAT scan.

During the procedure, the patient lies very still on a table. The table passes through the x-ray machine, which is shaped like a doughnut with a large hole. The machine, which is linked to a computer, rotates around the patient, taking pictures of one thin slice of tissue after another. To obtain a clearer picture, the patient may be given a solution of contrast material to drink or get an injection into an arm vein before the CT is done. The length of the procedure depends on the size of the area to be x-rayed.

Images from these x-rays are then processed by the computer. The final image, called a “computed tomogram” or “CT slice,” is displayed on a cathode-ray tube (CRT), a device similar to a television picture tube and screen. This image can be recorded permanently on film. In addition, a CT scan can be stored on magnetic tape or optical disk.

Computed tomography offers some advantages over other x-ray techniques in diagnosing disease, particularly because it clearly shows the shape and exact location of organs, soft tissues, and bones in any “slice” of the body. CT scans help doctors distinguish between a simple cyst and a solid tumor and, thus, evaluate abnormalities more accurately. CT scanning is more

accurate than conventional x-ray in determining the stage (extent) of some types of cancer.

Information about the stage of the disease helps the doctor decide how to treat it. CT scanning is also used to plan radiation therapy or surgery. The scans help doctors target treatment to the cancer and protect healthy tissue.

Spiral CT scanners are one of the latest innovations. They use continuous scanning to generate cross-sectional slices and make a set of 3-dimensional images. Spiral CT has decreased the time it takes to produce tomographic pictures.

Some people may be concerned about the amount of radiation they receive during a CT scan. It is true that the radiation exposure from a CT scan is slightly higher than from a regular x-ray. However, *not* having the procedure can be more risky than having it. If cancer is suspected, patients must weigh the risks and benefits.

Additional information about CT is available from the Public Relations Department of the American College of Radiology, 1891 Preston White Drive, Reston, VA 20191; the telephone number is 703-648-8900. The American College of Radiology website is located at <http://www.acr.org> on the Internet.

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### **Sources of National Cancer Institute Information**

#### **Cancer Information Service**

Toll-free: 1-800-4-CANCER (1-800-422-6237)

TTY (for deaf and hard of hearing callers): 1-800-332-8615

#### **NCI Online**

##### ***Internet***

Use <http://www.cancer.gov> to reach NCI's Web site.

##### ***CancerMail Service***

To obtain a contents list, send e-mail to [cancermail@icicc.nci.nih.gov](mailto:cancermail@icicc.nci.nih.gov) with the word "help" in the body of the message.

**CancerFax®** fax on demand service

Dial 301-402-5874 and listen to recorded instructions.

**This fact sheet was reviewed on 7/27/98**

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